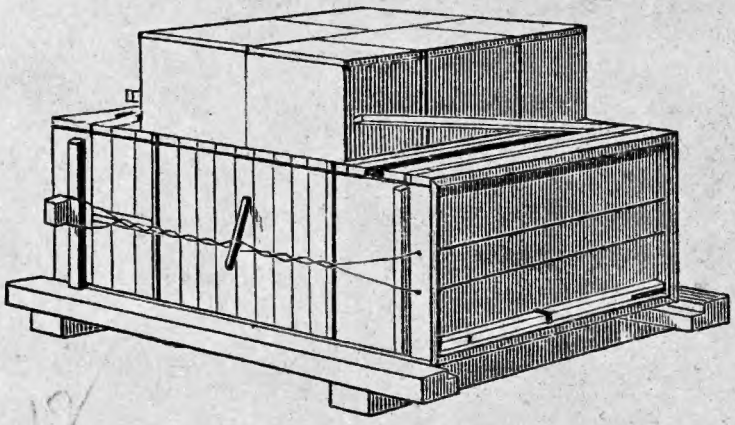
See caption title

T. WRIGHT'S

UNIVERSAL

BEE HIVE.



No. 85,716.

Patented January 5th, 1869.

PATENT PENDING FOR

Additional Improvements.

J. F. Daniels, Print., 55 W. Lake st Chicago.

INDEX.

HOW TO BE SUCCESSFUL
IN
BEE CULTURE.

Manage the bees and hive in harmony with the nature and habits of the bee, and in accordance with the climate and seasons and the honey resources of the locality in which the bees are kept. *See the bees often and know their condition* at all times. *Keep each colony strong*, and very strong when storing surplus honey, with suitable room rightly arranged for both brood and honey, removing surplus honey as fast as sealed when taken in the combs, and as fast as the combs are filled when removed by the extractor. Colonize the bees *only when populous* with a *large amount* of sealed and hatching brood in the hive, except for winter, and plenty of honey for the bees to gather for about two weeks, or otherwise feed them all they will need. When feeding to build combs and store honey feed regularly all the bees can use as long as fed; when for winter feed during warm spells in the fall soon after the first killing frosts, feeding good sugar syrup as fast as the bees can store it away, and until the contents of the hive weigh not less than thirty pounds. When preparing syrup, to every full quart of sugar add one pint of boiling hot water, heat to the boiling point and

skim. Before feeding for winter reduce the hive to (seven frames) as small a size as practicable, so that the bees will occupy every comb during winter. At the approach of winter secure proper upward ventilation so as to prevent the accumulation and retention of dampness, water, or frost in the hives, and if wintered on their snmmer stand, protect from cold winds with straw or other means that will retain warmth and not impede ventilation or evaporation, and shade the hives except during such days as the bees can fly without danger of being chilled on the snow or otherwise. They should be allowed to fly whenever the air in the shade is warm enough to induce them to fly. A *cool, dark, still, dry* place, with proper ventilation to the hives to keep the combs dry and the bees quiet, is the most favorable in which to winter bees with the least loss of either bees or honey. The bees should be allowed to fly as often as necessary to keep them in a healthy condition. How often they should fly depends in a great measure upon the condition of their honey, which often contains too much water and is otherwise impure, causing disease when the bees are confined too long. Whenever this condition exists the bees must be allowed to fly, and if the open air is too cold for them their hives should be placed in a warm room at the window, so situated that the bees can crawl back into the hive after flying.

This is an effectual remedy for the bee cholera or dysentery, and by the same means transfers may be successfully made, and the bees fed at any time during cold weather. Too long *confinement*, with *improper* ventilation and *impure* honey, have caused the loss of many colonies. They should not be

kept in the cellar or any other place of confinement too long, and after they become restless on account of disease or warmth.

When returning them to their summer stands, if confined but a short time, place each hive where it was before being put into winter quarters, and to insure this, stakes may be driven into the ground near the hives, and both numbered alike. For all practical purposes hives should be kept at least ten or fifteen feet apart, and where they can have a free circulation of air and be exposed to the sun at any time.

To produce strong colonies early in the season, feed the bees sugar syrup early in the spring, and often, in small quantities. Also give them plenty of finely ground, unbolted flour as early and late in the spring as they will use it. They will use flour made of various kinds of grain. If put in the feed box place it at the warmest end of the hive. In the sunshine is the most favorable place. The syrup may be poured into empty combs taken from the hive and returned.

As one of the best means of keeping colonies strong and profitable, keep none but very prolific queens under two years old, and when old queens are removed put others in their places, so as not to materially check the development of the brood. To prevent swarming, gradually enlarge the hive in the spring by adding frames to the central part of the hive as fast as the bees can properly occupy and fill them, and when the bees are storing honey remove it with the extractor. If colonizing is desired in connection with the use of the extractor, it may be done about the close of the main honey season, which occurs in many places about the mid-

dle of July, by removing seven frames of sealed and hatching brood and adhering bees, forming a new hive and removing it where it is to remain permanently, leaving the old queen at the old stand, and at the same time introducing a young queen in a wire cage in the newly formed hive, where it will be kept warm by the bees. Twenty-four hours later, shake the bees off of the combs into a box, and carefully destroy every forming queen cell, if any, and twelve hours later quietly liberate the queen. Then if feeding is necessary, feed each colony sugar syrup, or the extracted honey boiled and skimmed, until seven frames are well filled, and if surplus honey in the comb is desired, continue feeding, giving the bees suitable room, properly arranged for honey. By this means the bees may be employed building combs and storing honey until cold weather.

By the foregoing method of management the largest possible amount of honey may be secured, and in the most desirable form. If surplus honey only is desired, instead of dividing, reduce the brood compartment as the brood hatches to seven frames, at the same time arranging and feeding as before mentioned. If the most rapid increase of colonies is desired, then colonize as often as the required conditions will permit. If both an increase of colonies and surplus honey are desired, either with or without the use of the extractor, manage accordingly.

Rear drones and queens from the best and most prolific queens. In rearing queens use a strong colony, and either remove the queen or confine her to a few combs at the back part of the hive, until the queen cells have been formed and removed.

About sundown on the ninth day after this, for each hive to be colonized, take two or three frames of hatching and adhering bees from *as many different hives* and confine them, properly ventilated, in the back part of each hive to be colonized, and at the same time carefully give them one of the sealed queens. Near sundown on the second day after this, liberate these bees, and as soon as the young queens commence laying eggs, and all other conditions are right, colonize the bees. If the bees forming the nuclei are all taken from *one* hive, then form this nuclei about one day before giving them the sealed queen. Queens sometimes hatch on the tenth day, reared from larva six days old. In the evening, soon after sundown, is the best time to form nuclei or unite bees of different colonies. When robber bees are troublesome, late in the afternoon is the most favorable time to open hives, remove honey, transfer combs, colonize the bees, etc. At such times, before opening the hives, it is often best to take them into a room where the robbers cannot find them.

To rear drones early, select populous colonies and place empty drone combs in the central part of the hive. This should be done about two weeks before commencing to rear queens, which should be begun three weeks before the time for colonizing. Feeding, when honey is scarce, will favor the production of drone brood.

To avoid rearing drones, use the drone combs for surplus honey, or remove them from the hive. Drone brood may be destroyed with the sharp point of a knife, and the eggs and young larva by cold water. To prevent the worker bees from killing the drones at any time, transfer the drone brood

before hatching, forming a queenless hive, or, feed the bees regularly when they are not storing honey.

There are three classes of bees, one of males and two of females. The males are called drones, the fully developed females queens, and the balance workers, etc. The drones are the largest, the queens the longest, and the workers the smallest. The drones have no stings, and are helpless and defenceless and, like the workers, are short lived. The worker bees never copulate, but in queenless hives they often lay eggs and rear drones. All drones are produced from unimpregnated eggs. Impregnated eggs produce either queens or workers, that depending upon the manner in which they are reared. From the time the eggs are laid queens usually hatch on the sixteenth day, workers in twenty-one, and drones in twenty-four days. Queens when not confined copulate in the open air, and within a few weeks after hatching. Their eggs are not impregnated at the time of copulation, but at the time of being laid, when passing from the ovaries to the ovipositor through the oviduct, to which is connected the sac called the spermatheca, containing the male properties of fecundation. Eggs laid in drone cells are never impregnated. Some queens never copulate, and others become barren when old, and in either case their eggs produce only drones. Queens generally commence laying eggs between one and two weeks after hatching, and about two days after copulation, the time varying somewhat with the weather, etc. They seem to be deadly enemies to each other, and but one queen can remain long in the same hive unless confined, or their stings cropped. They will

sting nothing but rival queens. They sometimes live three or four years. Depositing eggs in the cells is all they seem to do in the economy of the hive, and in this they manifest great industry and sagacity, often producing, when conditions are favorable, thousands of eggs in a single day, arranging them in the combs in the most economic and systematic order. The workers during summer generally commence flying on the seventh day after hatching, and gathering polen and honey on the nineteenth, being forty days from the time the eggs were laid. Within forty days more they are gone. They live longer in winter because they do not wear out their wings, and are less exposed to accidents.

In form of government the bees are republican, each one laboring for the benefit of the whole colony, and for posterity, building combs and storing honey for succeeding generations. If a colony be reduced to the starving point each bee will divide with the others until all perish together. They are industrious, frugal and economical, and untiring in their devotion to the welfare of their colony. They have no political or religious dissensions, but seemingly strive to live in harmony with the laws of nature most conducive to their welfare. Useful lessons may be learned from the little honey bee by him who claims to be the highest type of animated nature, and the noblest work of God.

There are several varieties of honey bees, of which the Italian is perhaps the most profitable. They are more beautiful than the common black bees, and appear to be more hardy and productive, and to collect honey from sources that other bees do not. Such is the testimony of many beekeepers, and is confirmed by my own observations, having

propagated the Italian bee for the last twelve years.

To secure the fertilization of queens in confinement, arrange the hive so that the worker bees cannot interfere with the queens and drones, but so they will be kept warm and be fed during confinement. Admit a shaded light, enough to induce them to fly without seeing out of the space in which they are confined. Confine the queen when four days old with drones that are beginning to fly. A division board may be kept between them and the worker bees during their usual hours of flight when necessary, as a means of inducing them to fly. They may also have a frame of hatching drone or other brood and honey during confinement, as the workers do not usually fly before they are a week old.

A good fumigator is often a great convenience in controlling bees, and a bee hat also for the protection of those who are afraid of being stung. To transfer the combs and bees from common hives, remove the hive of bees out of the way of flying bees, putting an empty hive in its place to catch the returning bees; invert the hive of bees and place a suitable empty hive or box over it to catch the ascending bees, and pound the hive *stoutly*, rapidly and unceasingly with mallets, hammers, or heavy sticks until the queen and most of the bees ascend, which they will do in from five to thirty minutes. When the queen ascends, the bees will become more quiet. Then return the bees to their accustomed place, and after transferring their combs, rehive the bees, placing the new hive where the old one stood. Do not colonize or divide them until the bees have repaired their combs and have

them well filled with sealed and hatching brood. After driving out the bees cut the combs and sticks loose from the sides of the hive with a hand saw, remove the sides and carefully lay the combs on a table, and fit all suitable combs into the frames straight, placing the brood together, and arranging the combs as near as may be, in the same way they were in the old hive. The combs may be held in the frames by sticks made of straight twigs cut a little longer than the frames inside, and placed on each side of the combs so as to securely hold them until fastened by the bees; after which remove the sticks and cut away the lower edge of the combs, securing a free passway across the bottom of the hive. It is often necessary to put several pieces of comb into one frame, in order to get the combs transferred to the best advantage, and also to take the combs into a room or place where other bees cannot find them while being transferred, and the bees may be rehived in the same place when necessary and remain a few minutes, until they regain possession of their combs. The hive may also be protected from robber bees by placing the feed box and ventilating screen in the front part of the hive, and contracting the entrance or closing it entirely until night. The bees may also be confined to the hive in the same way for various purposes and for any suitable length of time.

Always keep the comb frames perpendicular, and when the bees are building combs give them what room they need and no more, arranging the frames and *honey guides* so as to secure straight combs of uniform thickness when filled with honey. When the bees are storing surplus honey keep these guide boards between every two or three empty frames

until nearly filled, removing and changing them and the frames, as conditions require. In the spring, when brood is being produced rapidly, and but little honey gathered, these boards may be dispensed with for that purpose. They may also be placed between the frames when shipping hives of bees or frames of honey, and when so used any comb accidentally breaking loose cannot fall over and kill the bees, or cause other combs to break loose. They may also be used as division boards when propagating, keeping, or shipping queens. With their use queens and colonies may be propagated easily and rapidly. A populous hive in the fall may also be partitioned into different compartments, with as many different queens, and conveniently wintered in the cellar or other suitable place, and on setting them out in the spring they may occupy separate stands, and be made populous by the time the white clover blossoms.

Colonies may be very easily doubled in this way. Rear a queen early in the fall in the back part of each hive, and before putting them into winter quarters place a division board in the central part of each hive, at the same time carefully equalizing the bees. On setting them out in the spring, separate them and let them occupy places a half mile apart, or, if wintered on their summer stands, or otherwise, gradually separate them while at work by moving each half a few inches further apart each day, until they are out of the way of each other. When changing the position of hives ever bear in mind that

> "A bee removed against its will,
> Is of the same opinion still."

During the working season three day's confine-

ment in a dark place will generally change their will in this respect. Enlarge each hive by adding an empty frame to the central part as often as the bees can properly occupy and fill them. When three or more queens are wintered in one hive, holes may be made in the frames at the sides of the hive alternately for the bees when required, and ventilation may be secured by slightly separating the frames when necessary. These boards may also be used in the form of screens for excluding the queen from the honey compartment, for separating the young queen and drones from the worker bees while confined for copulation, or for excluding the drones, etc.

To protect the combs from the caterpillars during warm weather after being taken from the bees, put them into a tight box or barrel, and destroy the worms with brimstone. To do this, saturate strips of cotton rags with melted brimstone and place them in the box or barrel on something that will not burn, and set them on fire, covering them closely for an hour. If too much brimstone is burned it will color the combs green, and if not enough the worms will not be killed. To determine this examine the combs often. Bees collect honey from a great many kinds of blossoms and other sources. These honey resources vary greatly in different localities often but a few miles apart, and in the same locality in different years. All beekeepers should be familiar with the honey resources of the locality in which their bees are kept, and manage them accordingly. The white clover is one of the principal sources of surplus honey in many sections of the country. This usually blooms near the 40th degree of latitude about the first of June, and lasts

till about the middle of July. Colonies that are kept populous during this time, and properly managed, are often very profitable. If the honey extractor is properly used during the honey season, two to three times as much honey will often be gathered as if taken in the combs, as the bees then consume no time and honey in constructing combs. At the close of the clover and linden bloom, this extracted honey may be fed to the bees, as there is then usually several weeks during which the bees consume more honey than they gather from blossoms. By this method the extracted honey may be secured in new combs in the nicest form for market. The bees are also kept strong and their combs filled, which is the best practical method of protecting them from the bee moth, which is usually the most troublesome during this season of the year. The bees being kept strong are also ready to gather honey rapidly during the buckwheat or fall season, and being kept strong and their combs properly filled secures them the best conditions for winter and for colonizing, by partitioning the hive before going into winter quarters.

It is here recommended that all honey made from natural sources, and especially that gathered in the fall season, be removed from the *brood* combs and replaced with good sugar syrup *soon* after the first killing frosts. Impure honey, by engendering disease, has caused the loss of many colonies of bees when confined too long to their hives during the winter and spring, and sometimes as late as during the month of April. During the winters and springs of 1872 and 1873 nearly all of the bees were lost from this cause in many parts of the northern, middle, eastern and western States. The remedy

here pointed out, with *proper management*, is *simple* and *thoroughly reliable.*

Feeding is very essential to the best success in bee culture. Judicious feeding early in the spring causes the bees to increase more rapidly. Feed in the summer and fall for the purposes already mentioned. Honey made from good sugar syrup, while it commands the highest price in the market, is also preferable for the bees during winter and spring, as honey made from natural sources, as before stated, often proves unhealthy for them. With proper attention to feeding, bees may be conveniently kept in the largest cities and other localities destitute of natural honey resources. By the means here pointed out both queens and colonies may be propagated during the winter in a room kept *constantly* warm.

Having experimented with hives and bees for many years, and with comb frames of many forms and dimensions, large and small, long and short, deep and shallow, wide and narrow, and constructed of both thick and thin materials, the frame here reccommended for the *Universal Hive* in its cheapest and most practical form for all purposes and all localities, is about ten and a half inches deep and twelve long inside, formed of bevelled bars three-quarters of an inch thick, one and a half wide and twelve long, with a small vertical bar in the center to support the combs when shippihg newly filled hives or frames of honey. This central bar, when used in the brood frames, should be removed within a year after the frames are filled, as the combs in this frame will by that time be self-supporting. One and a half inches is a good width for both brood and honey frames, and uniformity of size in

every way is preferable. Two or more smaller frames may be inserted within this frame for honey, when so desired, for market.

Having repeatedly wintered several colonies of bees in the open air in Southern Ohio, unsheltered, and with no protection to the bees but their comb frames, made of common pine plastering lath less than a half inch thick, and finding that each colony in every instance lived and came out in the spring in a healthy condition, and also finding that a small comb frame possesses advantages over all others in many ways, are my reasons for using the frame herein described. Large frames are difficult to manage, liable to accidents, and possess many other disadvantages. Frames made of thick material are also objectionable on account of crushing bees, unless formed of beveled bars, securing narrow surfaces. Triangular comb guides when used should be cut in the form of equilateral triangles, from boards nearly a half inch thick, and the lower edges well rubbed with beeswax to aid the bees in starting their combs. In the absence of these guides straight thin strips of old brood combs will answer the same purpose, secured to the frames with melted rosin and beeswax. The number of these frames required for a hive at any time depends upon circumstances. From three to seven are enough for winter, but are not enough for the queen in May and June. The number required then will depend upon the strength of the colony, the productiveness of the queen, and the amount of honey gathered.

The hive herein named is termed *Universal* because of its thorosgh practicability and adaptability to every department of bee culture. It was pat-

ented January 5th, 1869. It may be constructed in different ways and of many proportional dimensions, but uniformity of size and simplicity of construction is here recommended.

One of the cheapest and most practical methods of securing honey in boxes is to use shallow bottomless ones, say five and a half inches deep, six wide, and twelve long, inside. Bottoms may be added to them when filled with honey. Two such boxes will hold twenty-five pounds. Smaller boxes may be used when desired. If, when removing a box of honey it is found to contain brood, put an empty box in its place, with a suitable passage in the top for the bees, and place the filled box on top of the empty one, after driving out the queen. As the brood hatches the combs will be filled with honey. Partially filled boxes may be arranged above empty ones in the same way when desired, to give the bees more room for storing honey in boxes. The frames may also be conveniently used in place of these boxes by using two additional end pieces, E, inverting the upper ones, removing the strips m, and closing the external passages or spaces, k. The frames are indispensable when using the honey Extractor. They are also preferable to boxes for securing honey for market.

Great care and precision is required in planing and cutting up materials for hives, so that when the pieces are nailed together the frames may all be of one size, and the several corresponding parts of the hive adjustable to each other. A planer, sticker, and two circular saws are all that is necessary to be used in preparing the materials ready to nail together, and they may be prepared and nailed together rapidly by a brisk mechanic. A good cen-

trifugal machine for extracting or removing the honey from the combs is an *indispensable necessity to the best success* in bee culture.

A good method of protecting bees during cold weather is to cover their hives with boards, straw and soil. Select a dry, elevated situation, and arrange the hive supports end to end in a straight line, upon which place a single row of hives as near each other as practicable, properly ventilated at both top and bottom, placing boards over them in the form of a double inclined roof, and covering deep enough to keep the frost out of the hives.

They should also be kept dry and of a regular temperature, neither freezing cold nor warm enough to make the bees restless. A shaded place is the most favorable for securing a regular temperature. Too long confinement should also be avoided. As previously stated, the length of time which bees can be safely confined during cold weather, or any other time, depends in a great measure upon the condition and quality of their honey. The undersigned has kept bees successfully underground in southern Ohio in a cool, shaded and damp place, from the last of October till the first of March—four months in succession, without flying—but bees were not then lost in that locality on account of impure honey. The hives lost in weight during that time from fourteen to fifteen pounds each, and when taken out the combs were somewhat mouldy at their lower ends. But very little honey was collected there after the middle of July, consequently their honey contained but very little water, securing one of the most favorable conditions for long confinement.

Proper judgment and care is ever required for

the best success in wintering bees, and the same is true with regard to every season of the year. A bee hive can neither make honey nor manage the bees. The *Universal Hive* is only designed to furnish facilities by which the bees and hive *may* be managed to the best advantage for all purposes pertaining to the art and science of bee culture. This managing *must* be done by the beekeeper, and upon it mainly depends his success. That hive is the best which is the most practical and which affords the best and greatest number of facilities at an equal expense. It should secure in the most practical manner complete and separate control of the combs and of the bees at all times and for all purposes pertaining to the art and science of bee culture. It should admit of being readily enlarged or diminished at any time, so as to be best adapted to the bees and the convenience of the beekeeper during all seasons of the year; for colonizing, uniting or feeding the bees; uniting or separating their combs of brood or honey; for propagating queens in the most practical manner, and for shipping them and hives of bees or frames of honey conveniently from one part of the world to another.

The hive reduced to a small and compact form is best adapted to the bees for winter and spring; is the most easily handled, and occupies less room during transportation and when placed in winter quarters.

The *Universal Hive* will be found to possess all the advantages herein set forth, by those who will fully acquaint themselves with its designs and adaptations and use it accordingly, and as comprehended in the foregoing pages.

This short treatise was designed to point out in

a brief and comprehensive manner that which is necessary to be known and done in order to be the most successful in bee culture. To give a minute and detailed description of the bees and hive, and of the various modes of propagating and controlling bees, and of managing them and the hive for all purposes pertaining to bee culture, would require a large volume; but it is hoped that enough has here been given, if properly heeded, to enable all suitable persons to be successful, however inexperienced they may have been. *Correct management will ever secure success*, and bad management is worse than no management at all. *Knowledge, rightly applied* is, therefore absolutely *essential to success.*

Beekeepers that wish their bees to thrive,
Should not fail to keep each swarm alive;
And if kept always strong in numbers,
Would surely prove worth many dollars,
If kept in Wright's UNIVERSAL HIVE,
With suitable means to work and thrive.

For further evidence of the practical superiority of this Hive, those interested are referred to successful beekeepers who are using it, and to the Hive itself. A few testimonials only will here be given:

"Your Hive is one of the *very few* that is *real good* and no mistake."

L. C. WAITE, St. Louis,
Sec. Beekeeper's Association of the State of Missouri.

OSKALOOSA, Iowa, May 1st, 1872.

MR. A. T. WRIGHT—SIR:—My bees have wintered well in your Hive in the open air, without any protection around their comb frames, and are now strong and populous. For several years past I have been using the *Langstroth* and other improv-

ed hives; but for all practical purposes your *Universal Hive* is certainly far superior to all others.

Yours Truly,

C. G. OWEN, M. D.

KOKOMO, Ind., April 28, 1873.

MR. A. T. WRIGHT—SIR:—I have been experimenting with bees for the last twelve years, and have examined all hives that have come under my observation during that time. I have been using your *Universal Hive* about a year, and find it to be *much* the most practical hive I have ever seen.

Yours Truly,

J. M. SCOTTON, *Druggist.*

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